

WHAT IS CLAIMED IS:

1. A surface acoustic wave sensor or identification device having:

a piezoelectric substrate,

an interdigitated transducer (IDT) input/output mounted on a substrate for receiving a radio frequency (RF) signal and propagating a corresponding surface acoustic wave along a surface of the substrate,

an IDT reflector array mounted on the substrate and operable to receive said surface acoustic wave and reflect said surface acoustic wave in modified form back to the IDT input/output for transmission of a corresponding modified RF signal from the device, and

said IDT reflector array having at least one reflector segment whose reflectivity characteristics are controlled to control the nature of the modified RF signal.
2. A sensor or identification device according to claim 1 wherein the reflectivity characteristics of said at least one reflector segment are controlled during the manufacturing process to give the device a unique modified RF signal.
3. A sensor or identification device according to claim 1 wherein the reflectivity characteristics of said at least one reflector segment are controlled by a variable load externally thereof.
4. A sensor or identification device according to claim 3 wherein the external load is a transducer.
5. A sensor or identification device according to claim 4 wherein the sensor is an analog sensor.
6. A sensor or identification device according to claim 1 are in said at least one reflector segment has a fluidic chamber which in use contains fluid operable to control the nature of the reflected surface acoustic wave and hence the nature of the modified RF signal.

7. A sensor or identification device according to claim 6 wherein the chamber has an inlet and an outlet whereby in use the fluid flows through the chamber from the inlet to the outlet.
8. A sensor or identification device according to claim 6 wherein said at least one reflector segment has at least one pair of interdigitated fingers which communicate with said chamber.
9. A sensor or identification device according to claim 8 wherein said at least one pair of interdigitated fingers project into the chamber.
10. A sensor or identification device according to claim 8 wherein said at least one pair of interdigitated fingers are connected to respective bus bars and the chamber is formed between extensions of said bus bars.
11. A sensor or identification device according to claim 6 wherein the chamber has a wall with a conductive material thereon, the conductivity of the material being varied by variation of the nature of the fluid in the chamber.